October 26, 2021

Rebecca Schade
Office of Chief Counsel
National Highway Traffic Safety Administration (NHTSA)
1200 New Jersey Avenue, SE
Washington, DC 20590

Submitted via: www.regulations.gov

RE: Corporate Average Fuel Economy Standards for Model Years 2024-2026 Passenger Cars and Light Trucks (Docket No. NHTSA-2021-0053)

Dear Ms. Schader:

On behalf of Pearson Fuels, thank you for the opportunity to submit comments on the Corporate Average Fuel Economy Standards for Model Years 2024-2026 Passenger Cars and Light Trucks (CAFE Standards). As one of the leading suppliers of E85 fuel in the country, Pearson Fuels' primary interest in this proceeding is to ensure that the policy value of flex fuel vehicles (FFVs) that utilize E85 fuel is maintained within the federal policy framework. The policy value of FFVs encompasses the petroleum reduction, energy security, greenhouse gas (GHG) reduction, and cost savings that these proven vehicles deliver; coupled with the additional value that FFVs and E85 stations provide as essential vehicle, regulatory, and infrastructure bridges to next generation high-octane low carbon (HOLC) fuels and HOLC-fueled vehicles.

Innovative Fuel Distributor

Pearson Fuels is the largest distributor of E85 in California. The company supplies 228 retail E85 stations under long term contract and over 20 additional E85 commercial cardlock and government locations, resulting in a total E85 footprint of approximately 250 locations. Pearson Fuels continues to open 3-4 new E85 Stations per month. The company was founded in 2002 by three business associates that owned and managed one of San Diego's oldest and most respected car dealerships, Pearson Ford. Fifteen years ago, Pearson Fuels opened a retail station on El Cajon Boulevard in San Diego that was the first E85 station in the State of California, the first biodiesel station in San Diego, and San Diego's County's first dual pressure natural gas station. Subsequently named Pearson Fuel Depot, the station featured San Diego's largest electric vehicle charging facility, the county's first propane vehicle fueling station, and was the first local independent station to offer ultra-low sulfur diesel. Pearson Fuels continues to be an innovative fuel distributor having developed two hydrogen stations as well as two large wholesale biodiesel blending terminals located in Northern and Southern California. Pearson Fuels is

committed to providing a diversity of cleaner fuels that fit the needs of California consumers and the goals set forth by both federal and state programs.

Practical Benefits of FFVs

FFVs represent a key compliance flexibility that utilize a proven technology to cost-effectively achieve real-world petroleum and GHG reductions. FFVs are highly versatile in that these vehicles are approved by original equipment manufacturers (OEMs) to utilize blends of ethanol and gasoline that range from 0-85% ethanol, and are likewise federally certified to this range of fuel blends. Automakers can take advantage of FFVs to transition toward deployment of new efficient technologies requiring higher octane fuels in the range of 98 to 100 RON. E85 stations with blender pumps built to supply fuel to FFVs are uniquely capable of providing various ethanol blends to those future HOLC fueled vehicles that deploy advanced internal combustion engine technologies.

Fuel marketers can take advantage of their existing FFV fueling infrastructure to service a wider range of vehicle fueling needs in the future. Consumers that purchase or currently have FFVs can have confidence that they have the flexibility to fuel with any gasoline-ethanol blend. And these same FFV consumers can respond to fuel market signals by utilizing high blend E85 ethanol when the fuel is at the greatest discount to petroleum, midlevel ethanol blends to obtain optimal engine performance, and conventional gasoline in the event that ethanol prices are relatively high as compared to gasoline.

These are all vital flexibilities to a successful evolution of the vehicle market and to achieving the goals of this rulemaking – increased efficiency, improved energy security, reduced costs to consumers, and reduced petroleum usage by the transportation sector.

Policy Benefits of FFVs

Petroleum Reduction

There are approximately 22 million FFVs registered in the U.S. today.[1] This equates to a little less than 10 percent of the US gasoline powered vehicle fleet. The flexible capabilities of these vehicles support consumer choice at the pump. FFVs can legally and without any risk of regulatory or warranty breach use a wide range of any gasoline-ethanol blends up to 85 percent ethanol. This flexibility is good for the consumer, the retail fuel marketers, and supports state and federal renewable fuel requirements and policy objectives.

FFVs that utilize E85 also provide direct petroleum reduction benefits. Regardless of the blend ratio, ethanol reduces the petroleum content as compared to conventional gasoline. The higher the blend, the more the benefits.

GHG Reduction

From a lifecycle basis, the amount of GHG reduction compared to conventional gasoline is based on multiple factors including the type of feedstock utilized to produce the ethanol, the nature of the production process, the process energy utilized, and the production of other co-products. The

[1] According to figures from IHS Markit there are 21,818,980 flexible fuel vehicles registered in the U.S. as of 2018.

most extensive certification system for determining the GHG reductions achieved by ethanol produced from different facilities has been developed by the California Air Resources Board (CARB) pursuant to the Low Carbon Fuel Standard (LCFS). CARB has certified 552 different ethanol pathways. The average GHG reduction that CARB has certified for corn starch ethanol is approximately 30 percent. For advanced cellulosic feedstocks, CARB has certified multiple pathways in the range of providing 60-80 percent GHG reductions.[2] While precise GHG emission benefits vary, it's safe to say that the higher the ethanol blend, the better the GHG benefit.

Air Quality Benefits

There are numerous studies that demonstrate the value of ethanol blends in reducing tailpipe emission that cause or contribute to air quality problems as well as reduction in emissions that pose hazards to consumers from direct exposure to toxic tailpipe emissions. Two recent studies demonstrate how ethanol blends can significantly improve air quality and protect public health. The separate studies were conducted by the North Carolina State University (NCSU) and the University of California Riverside (UCR). The independent studies were designed to evaluate tailpipe emissions using fuels similar to what consumers can buy at the gas station, instead of laboratory created test fuels.[3]

Today, nearly all of gasoline in the United States contains 10% ethanol (E10). These studies provide evidence that air quality can be significantly improved with blends in excess of E10. While both studies focused on tailpipe emissions, the UCR study also evaluated the impact emissions have on air quality after leaving the tailpipe. Researchers found ethanol blends reduce toxic emissions by up to 50%, including smog and ultra-fine particulates. The study also found that petroleum based aromatic compounds benzene and toluene that are used to boost octane directly raise emissions, while higher blends of ethanol added to gasoline boost octane while decreasing emissions. The UCR study compared E10, E30 and E85 fuels and found the best results with the higher ethanol blends.[4]

Cost Savings to the American Public

It is now clear that customers are embracing E85 fuel with the largest state gasoline market in the country showing 30% year on year growth in E85 sales. CARB has confirmed the rigor of its oversight program and the rate of E85 growth in a letter to Pearson Fuels that is attached as an

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[2] See Low Carbon Fuel Standard, 17 §§95480 et seq.; for specific pathway certifications, see California Air Resources Board, "LCFS Pathway Certified Carbon Intensities," at https://www.arb.ca.gov/fuels/lcfs/fuelpathways/pathwaytable.htm .

[3] "Investigating the Effect of Varying Ethanol and Aromatic Fuel Blends on Secondary Organic Aerosol Forming Potential for a FFV-GDI Vehicle," Patrick Roth et al, University of California, Riverside, findings at https://fixourfuel.com/wp-content/uploads/2018/04/UC-Riverside-Study.pdf ; "Comparison of Real-World Vehicle Emissions for Gasoline-Ethanol Fuel Blends," H. Christopher Frey at al., North Carolina State University, findings at https://fixourfuel.com/wp-content/uploads/2018/04/NCSU-Study.pdf .

[4] Id.

exhibit to this comment.[5] The growth in demand for E85 from FFVs in the nation's largest market is remarkable, surging from less than 6.5 MGY in 2012 to over 40 MGY in 2019. While E85 demand was flat in volume in 2020 compared to 2019, the fuel was continuing to increase market share at a time when demand for gasoline dropped dramatically due to the impact of COVID-19 on the market. Preliminary Pearson Fuels' sales data through August 2021 suggests the growth rate for 2021 E85 sales has accelerated to exceed 35% year-on-year growth compared to 2020 and is on pace to exceed 55 million gallons statewide.

The primary reason E85 use is on the rise in California and across the entire country is a typical and crucial driver in the fuel market, price. At the retail level, U.S. FFV owners can fill up on E85 and routinely save 10 percent or more compared to conventional unleaded on a price per mile basis. FFV owners previously unable to fuel with E85 because of limited availability are just now being exposed to a robust network of E85 stations offering steep price discounts to gasoline, and providing a cleaner fuel that simultaneously boosts octane, the farm economy, and U.S. energy security. E85's rapidly growing market appeal is not limited to California and is part of broader US market transition toward higher ethanol blends. This rapid growth in E85 demand is occurring despite the fact that diminished FFV crediting under both the CAFE program and the U.S. Environmental Agency's (EPA) Greenhouse Gas Emissions Standards has undercut the incentive for the automakers to manufacture FFVs. Given the remarkable uptick in E85 demand from existing FFVs in the state that has the most developed GHG and petroleum reduction policy structure, NHTSA should at a minimum maintain the status quo regarding FFV crediting under the CAFE Standards.

Vehicle Bridge to Advanced IC Engine Technologies

In addition to delivering petroleum reduction, costs savings, air quality benefits and GHG reductions, FFVs provide a vehicle bridge to advanced IC engine technologies that utilize HOLC fuels. The resulting policy imperative to support FFVs is well-expressed in a study authored by the National Renewable Energy Laboratory and Argonne National Laboratory:

> *"Original equipment manufacturers (OEMs) of light-duty vehicles are pursuing a broad portfolio of technologies to reduce CO_2 emissions and improve fuel economy. Central to this effort is higher efficiency spark ignition (SI) engines, including technologies reliant on higher compression ratios and fuels with improved anti-knock properties, such as gasoline with significantly increased octane numbers. Ethanol has an inherently high octane number and would be an ideal octane booster for lower-octane petroleum blendstocks. (…) Thus the legacy FFV fleet can serve as a bridge by providing a market for the new fuel immediately, so that future vehicles will have improved efficiency as the new fuel becomes widespread. In this way, (High Octane Fuel) can simultaneously help*

[5] October 22, 2020 letter from Alexander "Lex" Mitchell, Manager, Emerging Technologies Section, California Air Resources Board regarding E85 use, to Graham Noyes, Noyes Law Corporation. This CARB letter is attached as an exhibit to the comment of Pearson Fuels to this proceeding.

improve fuel economy while expanding the ethanol market in the United States via a growing market for an ethanol blend higher than E10."[6]

The ideal way to facilitate the transition from today's legacy fleet to new vehicles with advanced internal combustion engine technologies designed to run optimally on high-octane fuels is to utilize FFVs as bridge vehicles that can provide immediate demand for any ethanol blend, including midlevel ethanol blends (MLEB). Oak Ridge National Laboratory (ORNL) has investigated the use of high-octane ethanol blends such as E25 and E30 in FFVs that are designed and compatible with ethanol blend levels from 0 to 85% and can therefore seamlessly and with OEM approval utilize midlevel ethanol blends. Key findings from ORNL include: "Experiments were performed with four FFVs using an E10 (92 RON) and E30 (100 RON) fuel. The two direct-injection FFVs demonstrated performance improvements for E30 compared to E10 of 2.5 to 3 percent, based on the 15-80 wide-open throttle acceleration time. Three of the four FFVs showed performance improvement with high-octane E30 compared to regular E10. (…) Marketing E25 or E30 to FFV owners as a performance fuel may enable greater utilization of ethanol in the near term and could help establish the refueling infrastructure to enable manufacturers to build dedicated vehicles designed for a high-octane midlevel ethanol blend."[7]

Infrastructure Bridge to HOLC Fuels

E85 stations provide an infrastructure bridge to fuel HOLC-fueled vehicles because E85 stations maintain high-blend ethanol in storage on site and typically utilize blender pumps that enable fueling of MLEB as well as E85. Existing E85 stations can be leveraged to rapidly establish a nation-wide MLEB fueling station network. E85 stations should be recognized as national infrastructure assets that have been developed and continue to be developed as a result of the highly effective and longstanding partnership between the federal and state governments, fuel distributors, and the farming community to expand fuel ethanol production and use. This partnership coupled with other state and federal renewable fuel policies has successfully more than tripled U.S. ethanol production and domestic use between 2005-2020.[8] To enable the supply of higher ethanol blends including pumps that supply FFVs, the U.S. Department of Agriculture recently awarded 100 million dollars to install 4,880 blender pumps across twenty states.[9] These federal grants were matched by state funds and successfully expanded the national network of E85 stations with blender pumps that is immediately available to deliver FFVs.

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[6] Michael Wang, Robert McCormick, Teresa Alleman et al., Oak Ridge National Laboratory, National Renewable Energy Laboratory, and Argonne National Laboratory, "Summary of High-Octane Mid-Level Ethanol Blends Study," at p. 1, http://info.ornl.gov/sites/publications/files/Pub61169.pdf (last viewed March 15, 2017).

[7] "Effects of High-Octane Ethanol Blends on Four Legacy FFVs and a Turbocharged GDI Vehicle." Thomas, J., West, and Huff, S., U.S. DoE-ORNL. March 2015. https://www.fueleconomy.gov/feg/pdfs/ORNL_High_Octane_Legacy_Vehicles_Report%28final%29.pdf

[8] U.S. Energy Information Administration, "U.S. Production, Consumption, and Trade of Ethanol," (updated June 2021), available at https://afdc.energy.gov/data/10323

[9] "Biofuel Infrastructure Partnership, List of States receiving BIP Grants," U.S. Department of Agriculture. https://www.fsa.usda.gov/programs-and-services/energy-programs/bip/index

Carbon Neutrality Cannot Feasibly be Achieved without FFVs:
On April 22, 2021, President Biden announced a "nationally determined contribution" pledge under the 2015 Paris climate agreement to cut U.S. GHG emissions in half by 2030 at a virtual climate summit attended by dozens of world leaders. In his remarks about the pledge from the White House, the President stated, "These steps will set America on a path of net zero emissions economy by no later than 2050."[10] Thus the President has re-established aggressive GHG reduction as a priority policy of the federal government.

The State of California has taken a leadership role in climate policy dating back to 2006, and has developed a network of policies and strategies to enable decarbonization. Consistent with this, Governor Jerry Brown signed Executive Order No. B-55-18 in 2018. The Executive Order established a new statewide goal to achieve carbon neutrality as soon as possible, and no later than 2045, and to achieve and maintain net negative emissions thereafter. Further to that goal, the California Legislature approved the Budget Act of 2019 (AB 74) that funded two studies, administered by the California Environmental Protection Agency, to: 1) identify strategies to reduce emissions from transportation energy use, and 2) identify strategies to manage the decline in fossil fuel production and associated emissions in parallel with reductions in demand. The study to reduce emissions from transportation use was conducted by the University of California Institute of Transportation Studies ("ITS") at four campuses, UC Davis, UC Berkeley, UC Irvine, and UCLA.

The resulting ITS report is entitled, "Driving California's Transportation Emissions to Zero."[11] While California leads the nation in electrifying transportation, the primary strategy developed in the report still recognized the reality that forcing all internal combustion engines off the road by 2045 is impossible in a free country. As a result, the Driving California's Transportation Emissions to Zero report concluded that to achieve carbon neutrality it was necessary for California to make a complete transition by 2045 from petroleum-based gasoline to bio-based gasoline including ethanol blends as is illustrated in the following graph. Consistent with this forecast, Pearson Fuels is already supplying almost 100% renewable E-85 fuel into the California marketplace. The 15% portion of the gallon formerly consisting of gasoline is now renewable naphtha with the only remaining petroleum being the denaturant.[12] The only existing vehicles that can utilize this type of bio-based gasoline are FFVs. Petroleum-reducing innovations in fuels as well as vehicles are necessary to meet President Biden's pledge and should be supported by NHTSA's CAFE Standards.

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[10] Josh Lederman and Denise Chow, "Biden Commits to cutting U.S. emissions in half by 2030 as part of Paris climate pact," (April 22, 2021), available at https://www.nbcnews.com/politics/white-house/biden-will-commit-halving-u-s-emissions-2030-part-paris-n1264892

[11] Institute of Transportation Studies, "Driving California's Transportation Emissions to Zero," (April 2021), available at https://escholarship.org/uc/item/3np3p2t0

[12] Biomass Magazine, "Pearson Fuels blends ethanol, renewable naphtha into advanced E85," (October 23, 2019), at http://biomassmagazine.com/articles/16560/pearson-fuels-blends-ethanol-renewable-naphtha-into-advanced-e85

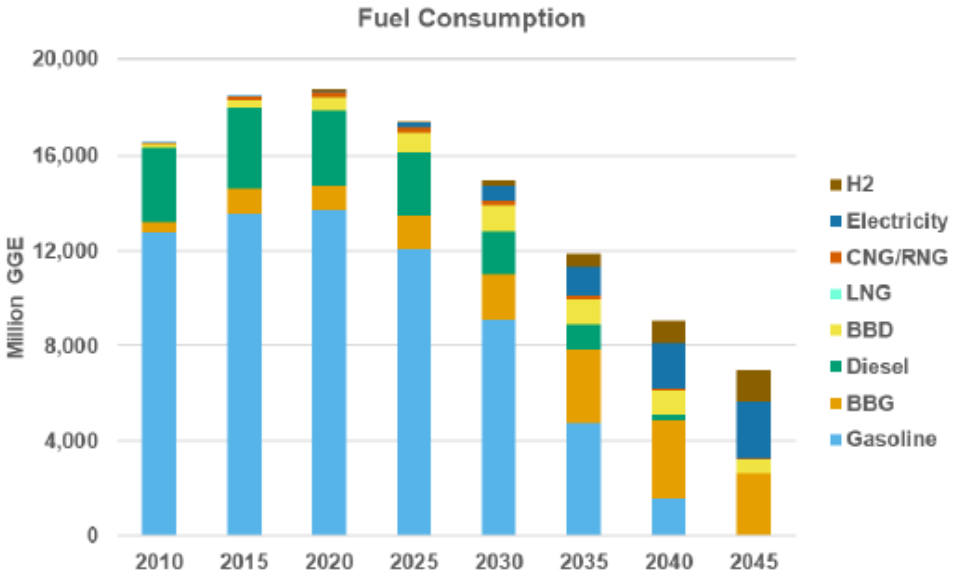

Figure EX-2. CO_2 emissions and fuel consumption projections in the LC1 scenario. The near-zero CO_2 emissions target is reached by 2045, with nearly all fossil fuels replaced by electricity, hydrogen, and biofuels at that date. (MMT, million metric tonnes; SAF, sustainable aviation fuel; H2, hydrogen; CNG/RNG, compressed natural gas/renewable natural gas; LNG, liquefied natural gas; BBD, bio-based diesel, including biodiesel and renewable diesel; BBG, bio-based gasoline, including ethanol blends and drop-in gasoline replacement fuels)

Driving California's Transportation Emissions to Zero

<u>The .15 factor for FFVs must not be eliminated as it reflects statutory intent and incentivizes manufacturing vehicles that significantly benefit achieving CAFE rule goals</u>.

The Notice of Proposed Rulemaking (NPRM) "seeks comment on whether to retain non-statutory flexibilities." (NPRM at 49,609). Included in the NPRM are a list of incentives, including a .15 factor that is used to incentivize manufacturing flex-fuel vehicles (FFVs). (NPRM at 49,610). FFV fuel nominally contains up to 85% ethanol ("E85") and only 15% gasoline, parallel to the .15 factor. The NPRM indicates without extended discussion that "NHTSA will continue to incorporate the .15 incentive factor." (NPRM at 49,610 and 49,816). It is imperative NHTSA retain the use of this .15 factor in order to respect statutory intent, promote key CAFE energy security and environmental goals, and help ensure the success of the CAFE program. Since the NPRM does not discuss or take comment on removing this .15 factor, nor provide any analytical basis for removing it, any NHTSA action on this .15 factor for FFVs would be inappropriate. Furthermore, automakers have relied on this .15 factor remaining in effect to support existing and planned FFV manufacturing.

This .15 factor is based on statutory incentive provisions and must not be altered.[13] The NPRM notes that in a 2012 CAFE final rule "NHTSA and EPA concluded that it would be inappropriate

[13] The .15 factor is derived from the statutory provisions at 49 U.S.C. 32905(a). The current CAFE regulations contain this .15 factor for FFVs at 40 CFR 600.510-12(c)(2)(v).

and contrary to the intent of EPCA/EISA to measure duel-fueled vehicles' fuel economy like that of conventional gasoline vehicles with no recognition of their alternative fuel capability." (NPRM at 49,832). This reasoning is correct. Eliminating this .15 factor for dual-fueled vehicles (i.e., FFVs) would create an arbitrary and capricious distinction between 100% biofuel dedicated vehicles (which are not commercialized in the U.S.) and an FFV designed to run on E85 (and can run on 100% renewable fuel when using additional fuel components like renewable naphtha).

FFVs and the .15 factor can help ensure the success of the CAFE program. FFVs provide automakers an important compliance flexibility and can facilitate the transition to increased electrification by promoting the acceptability of strong CAFE Standards. For those internal combustion engines that remain in fleets while vehicle electrification increases, FFVs are a proven, cost-effective technology to reduce petroleum use and improve environmental outcomes. FFVs help promote environmental justice both by reducing emissions and allowing automakers to offer affordable, high-performing, low-emitting vehicles to less affluent consumers.

As previously discussed, various next generation engines, including downsized and turbo-charged engines, are well suited to run on higher level ethanol blends, which provide a clean, renewable source of octane.[14] FFVs provide a pathway to the use of these higher octane blends, which can be immediately used in FFVs. E85 provides energy security benefits by displacing petroleum for FFV fuel, and ethanol substantially reduces greenhouse gas emissions from vehicles.[15] FFVs can also be combined with hybrid electric and plug-in hybrid electric technology to offer consumers fuel flexibility and even greater emission reductions.

In summary, this .15 factor for FFVs is statutorily derived and must not be eliminated or altered by NHTSA. Prior NHTSA reasoning dating back to 2012 on maintaining this .15 factor was correct, and it would be arbitrary and capricious for NHTSA to remove the regulatory incentive for dual-fueled FFVs vehicles, contravening the statutory incentive for dedicated biofuel vehicles. FFVs promote key CAFE goals regarding energy security, reducing emissions, and environmental justice. NHTSA has not proposed modifying the .15 factor for FFVs, and this .15 factor for FFVs must be left in place as-is, without modification.

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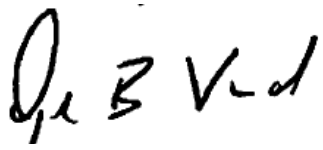
[14] See e.g., Oak Ridge National Laboratory, *Summary of High-Octane, Mid-Level Ethanol Blends Study* (July 2016), pp. 1 to 2 and 16 to 17, available at https://info.ornl.gov/sites/publications/Files/Pub61169.pdf.

[15] Data show today's corn ethanol reduces greenhouse gas emissions by an average of 46% compared to gasoline and can reduce emissions up to 70% with readily available technologies. See e.g., Scully et al, *Carbon intensity of corn ethanol in the United States: state of the Science* (2021, Environ. Res. Lett), available at https://iopscience.iop.org/article/10.1088/1748-9326/abde08; Lewandrowski (USDA) et al., *The greenhouse gas benefits of corn ethanol – assessing recent evidence* (March 2019), available at https://www.tandfonline.com/doi/full/10.1080/17597269.2018.1546488.

Conclusion

As NHTSA works to finalize the CAFE Standards, we encourage a view toward the future to maintain compliance flexibilities that offer the greatest opportunity for the market to evolve in a cost-effective, transparent and flexible manner. This approach includes considerations of future vehicle design and deployment but also recognizes the importance of proven technologies, policy continuity, and vehicles capable of facilitating a transition to petroleum reduction and more efficient internal combustion engines. FFVs utilize proven technologies to improve efficiency, reduce petroleum usage, save consumers and automakers money, reduce GHG emissions, improve US energy security, strengthen the US farm economy, and build a bridge to future technologies. Maintaining the current crediting structure for the manufacture of FFVs should therefore remain a part of the CAFE Standards.

Sincerely,



Doug Vind
Pearson Fuels

CALIFORNIA AIR RESOURCES BOARD

October 22, 2020

Graham Noyes
Noyes Law Corporation
401 Spring Street, Suite 205
Nevada City, CA 95959

Dear Mr. Noyes:

Thank you for your inquiry regarding the amount of E85 sold in California for transportation fuel purposes. As you are aware, the State of California tracks E85 fuel volumes reported under the E85 program found in Title 13, California Code of Regulations, section 2292.4. Fuel suppliers are required to report E85 volumes in California via reports that are filed with the California Air Resources Board. E85 blended by these authorized fuel suppliers is legal for sale in California for use in flexible fuel vehicles and represents virtually all the E85 sold in the State.

Year	Gallons	Year	Gallons
2006	8,000	2013	8,799,981
2007	155,847	2014	11,066,428
2008	770,983	2015	14,773,124
2009	1,643,497	2016	18,679,904
2010	2,930,034	2017	23,854,146
2011	5,024,329	2018	33,774,239
2012	6,482,868	2019	40,602,796

The number of E85 stations has increased from 130 in 2018 to 306 today.

My staff has reviewed these numbers and they are accurate to the best of our knowledge.

Sincerely,

Alexander "Lex" Mitchell, Manager
Emerging Technology Section
Industrial Strategies Division